

Amendments to the Claims

The listing of claims below will replace all prior versions and listings of claims in the present application.

Claim Listing

1-13. (Canceled)

14. (New) A method comprising:

identifying a first network component in a first path using a first identifier stored in a data structure, wherein

the first path is between a first node and a second node;

removing the first identifier from the data structure; and

identifying a second network component in a second path using a second identifier stored in the data structure, wherein

the second identifier remains in the data structure subsequent to the removing the first identifier,

the second path is between the first node and the second node, and

the first path and the second path are disjoint.

15. (New) The method of claim 14, further comprising:

identifying a plurality of network components in the first path using identifiers stored in the data structure; and

removing the identifiers corresponding to the network components in the first path from the data structure.

16. (New) The method of claim 15, further comprising:

storing the plurality of identifiers in the data structure, wherein

each one of the identifiers represents a corresponding one of a plurality of network components.

17. (New) The method of claim 14, further comprising:

sending a packet from the first node via the first path; and

sending a duplicate of the packet from the first node via the second path.

18. (New) The method of claim 17, wherein the first and second network components are nodes.

19. (New) The method of claim 17, wherein the first and second network components are links.

20. (New) The method of claim 17, further comprising:
removing the second identifier from the data structure;
identifying a third network component, in a third path between the first node and the second node, using a third identifier stored in the data structure, wherein the third identifier remains in the data structure subsequent to the removing the second identifier, and
the first path, the second path, and the third path are disjoint.

21. (New) The method of claim 20, further comprising:
sending an additional duplicate of the packet from the first node via the third path.

22. (New) The method of claim 17, further comprising:
associating a sequence number with each of the packet and the duplicate of the packet.

23. (New) The method of claim 22, further comprising:
receiving both of the packet and the duplicate of the packet at the second node; and
discarding one of the packet and the duplicate in response to the sequence number associated with each of the packet and the duplicate.

24. (New) The method of claim 17, wherein the identifying ones of the network elements in the first path is based on an Open Shortest Path First (OSPF) algorithm.

25. (New) The method of claim 17, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

26. (New) The method of claim 17, wherein the sending the packet comprises sending the packet according to a label-switching protocol.

27. (New) The method of claim 17, further comprising:
storing cost and topology information, wherein
the cost and topology information is used to identify the first path.

28. (New) The method of claim 17, wherein
the data structure is a heap data structure.

29. (New) A method comprising:
sending a packet from a first network element to a second network element via a first
path using multiprotocol label switching protocol (MPLS); and
sending a duplicate of the packet from the first network element to the second
network element via the second path using MPLS, wherein
the first path and the second path are disjoint.

30. (New) The method of claim 29, wherein the identifying the first path is based on
an Open Shortest Path First (OSPF) algorithm.

31. (New) The method of claim 30, wherein the identifying the second path is based
on the OSPF algorithm.

32. (New) The method of claim 30, further comprising:
associating a sequence number with each of the packet and the duplicate of the
packet.

33. (New) The method of claim 32, further comprising:
receiving both of the packet and the duplicate of the packet at the second node; and
discarding one of the packet and the duplicate in response to the sequence number
associated with each of the packet and the duplicate.

34. (New) The method of claim 30, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

35. (New) The method of claim 29, further comprising:

identifying a first network component in the first path using a first identifier stored in a data structure;

removing the first identifier from the data structure;

identifying a second network component in the second path using a second identifier stored in the data structure, wherein the second identifier remains in the data structure subsequent to the removing the first identifier.

36. (New) The method of claim 35, wherein the first and second network components are nodes.

37. (New) The method of claim 35, wherein the first and second network components are links.

38. (New) A computer readable medium comprising program instructions executable to:

identify a first network component, in a first path between a first node and a second node, using an identifier stored in a data structure;

remove the identifier corresponding to the first network component from the data structure; and

identify a second network component, in a second path between the first node and the second node, using a second identifier stored in the data structure, wherein the second identifier remains in the data structure subsequent to removal of the first identifier, and the first path and the second path are disjoint.

39. (New) The computer readable medium of claim 38, wherein the program instructions are further executable to:

identify a plurality of network components in the first path using identifiers stored in the data structure; and

remove the identifiers corresponding to the network components in the first path from the data structure.

40. (New) The computer readable medium of claim 39, wherein the program instructions are further executable to:

store identifiers in the data structure, wherein
each one of the identifiers represents a corresponding one of a plurality of network components.

41. (New) The computer readable medium of claim 38, wherein the program instructions are further executable to:

send a packet from the first node via the first path; and
send a duplicate of the packet from the first node via the second path.

42. (New) The computer readable medium of claim 41, wherein the first and second network components are nodes.

43. (New) The computer readable medium of claim 41, wherein the first and second network components are links.

44. (New) The computer readable medium of claim 41, wherein the program instructions are further executable to:
associate a sequence number with each of the packet and the duplicate of the packet.

45. (New) The computer readable medium of claim 41, wherein ones of the network elements in the first path are identified based on an Open Shortest Path First (OSPF) algorithm.

46. (New) The computer readable medium of claim 45, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

47. (New) The computer readable medium of claim 41, wherein the packet is sent according to a label-switching protocol.

48. (New) The computer readable medium of claim 41, wherein the program instructions are further executable to:

store cost and topology information, wherein
the cost and topology information is used to identify the first path.

49. (New) A computer readable medium comprising program instructions executable to:

send a packet from a first network element to a second network element via a first path using multiprotocol label switching protocol (MPLS); and
send a duplicate of the packet from the first network element to the second network element via the second path using MPLS, wherein
the first path and the second path are disjoint.

50. (New) The computer readable medium of claim 49, wherein the first path is identified based on an Open Shortest Path First (OSPF) algorithm.

51. (New) The computer readable medium of claim 50, wherein the second path is identified based on the OSPF algorithm.

52. (New) The computer readable medium of claim 50, wherein the program instructions are further executable to:

associate a sequence number with each of the packet and the duplicate of the packet.

53. (New) The computer readable medium of claim 50, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

54. (New) The computer readable medium of claim 49, wherein the program instructions are further executable to:

identify a first network component in the first path using a first identifier stored in a data structure;

remove the first identifier from the data structure; and

identify a second network component in the second path using a second identifier stored in the data structure, wherein

the second identifier remains in the data structure subsequent to removal of the first identifier.

55. (New) A system comprising:

means for identifying a first network component in a first path using an identifier stored in a data structure, wherein

the first path is between a first node and a second node;
means for removing the identifier corresponding to the first network component from the data structure; and
means for identifying a second network component in a second path using a second identifier stored in the data structure, wherein the second identifier remains in the data structure subsequent to removal of the first identifier
the second path is between the first node and the second node, and
the first path and the second path are disjoint.

56. (New) The system of claim 55, further comprising:

means for identifying a plurality of network components in the first path using identifiers stored in the data structure; and
means for removing the identifiers corresponding to the network components in the first path from the data structure.

57. (New) The system of claim 56, further comprising:

means for identifying a plurality of network components in the first path using identifiers stored in the data structure; and
means for removing the identifiers corresponding to the network components in the first path from the data structure.

58. (New) The system of claim 55, further comprising:

means for storing identifiers in the data structure, wherein
each one of the identifiers represents a corresponding one of a plurality of network components.

59. (New) The system of claim 55, further comprising:

means for sending a packet from the first node via the first path; and
means for sending a duplicate of the packet from the first node via the second path.

60. (New) The system of claim 59, wherein the first and second network components are nodes.

61. (New) The system of claim 59, wherein the first and second network components are links.

62. (New) The system of claim 59, further comprising:
means for associating a sequence number with each of the packet and the duplicate of the packet.

63. (New) The system of claim 59, wherein ones of the network elements in the first path are identified based on an Open Shortest Path First (OSPF) algorithm.

64. (New) The system of claim 59, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

65. (New) The system of claim 59, wherein the packet is sent according to a label-switching protocol.

66. (New) The system of claim 59, further comprising:
means for storing cost and topology information, wherein
the cost and topology information is used to identify the first path.

67. (New) A system comprising:
means for sending a packet from a first network element to a second network element via a first path using multiprotocol label switching protocol (MPLS); and
means for sending a duplicate of the packet from the first network element to the second network element via the second path using MPLS, wherein
the first path and the second path are disjoint.

68. (New) The system of claim 67, wherein the first path is identified based on an Open Shortest Path First (OSPF) algorithm.

69. (New) The system of claim 68, further comprising:
means for associating a sequence number with each of the packet and the duplicate of the packet.

70. (New) The system of claim 68, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

71. (New) The system of claim 67, further comprising:
means for identifying a first network component in the first path using a first identifier stored in a data structure;
means for removing the first identifier from the data structure;
means for identifying a second network component in the second path using a second identifier stored in the data structure, wherein
the second identifier remains in the data structure subsequent to the removal of the first identifier.

72. (New) The system of claim 71, wherein the first and second network components are nodes.

73. (New) The system of claim 71, wherein the first and second network components are links.

74. (New) A system comprising:
a first node;
a second node;
a first path between the first node and the second node; and
a second path between the first node and the second node, wherein
the first node is configured to:
identify a first network components in the first path using a first
identifier stored in a data structure,
remove the first identifier from the data structure, and

identify a second network component in the second path using a second identifier stored in the data structure, the second identifier remains in the data structure subsequent to removal of the first identifier, and the first path and the second path are disjoint.

75. (New) The system of claim 74, wherein the first node is configured to: identify a plurality of network components in the first path using identifiers stored in the data structure; and remove the identifiers corresponding to the network components in the first path from the data structure.

76. (New) The system of claim 75, wherein the first node is configured to: store identifiers in the data structure, each one of the identifiers representing a corresponding one of a plurality of network components.

77. (New) The system of claim 74, wherein the first node is configured to: send a packet via the first path, and send a duplicate of the packet via the second path.

78. (New) The system of claim 77, wherein the first and second network components are nodes.

79. (New) The system of claim 77, wherein the first and second network components are links.

80. (New) The system of claim 77, wherein the first node is further configured to: associate a sequence number with each of the packet and the duplicate of the packet.

81. (New) The system of claim 77, wherein the first node identifies the ones of the network elements in the first path based on an Open Shortest Path First (OSPF) algorithm.

82. (New) The system of claim 81, wherein the packet is a Voice over Internet Protocol (VoIP) packet.

83. (New) The system of claim 77, wherein the first node is sends the packet according to a label-switching protocol.

84. (New) A system comprising:

a first node;

a second node;

a first path between the first node and the second node; and

a second path between the first node and the second node, wherein

the first node is configured to:

send a packet to the second node via the first path using multiprotocol
label switching protocol (MPLS); and

send a duplicate of the packet to the second node via the second path
using MPLS, and

the first path and the second path are disjoint.

85. (New) The system of claim 84, wherein the first node is configured to identify the first path based on an Open Shortest Path First (OSPF) algorithm.

86. (New) The system of claim 85, wherein the first node is configured to identify the second path based on the OSPF algorithm.

87. (New) The system of claim 85, wherein the first node is configured to associate a sequence number with each of the packet and the duplicate of the packet.

88. (New) The system of claim 87, wherein the second node is configured to discard one of the packet and the duplicate in response to the sequence number associated with each of the packet and the duplicate.

89. (New) The system of claim 85, wherein
the packet is a Voice over Internet Protocol (VoIP) packet.

90. (New) The system of claim 84, wherein the first node is configured to:
identify a first network component in the first path using a first identifier stored in a
data structure;

remove the first identifier from the data structure; and
identify a second network component in the second path using a second identifier
stored in the data structure, wherein
the second identifier remains in the data structure subsequent to removal of the
first identifier.